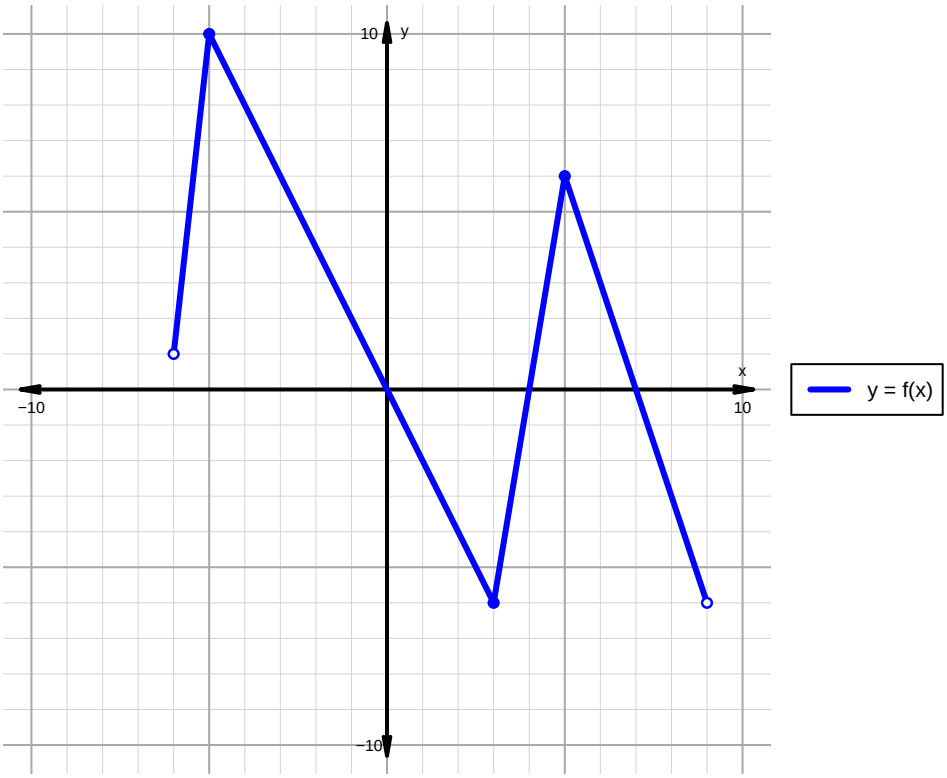
Name: Date:

## Intervals, Transformations, and Slope Solution (version 8)

1. The function $f$ is graphed below.




Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate $x$ values; this is standard.

| Feature | Where |
|---|---|
| Positive | $(-6, 0) \cup (4, 7)$ |
| Negative | $(0, 4) \cup (7, 9)$ |
| Increasing | $(-6, -5) \cup (3, 5)$ |
| Decreasing | $(-5, 3) \cup (5, 9)$ |
| Domain | $(-6, 9)$ |
| Range | $(-6, 10)$ |

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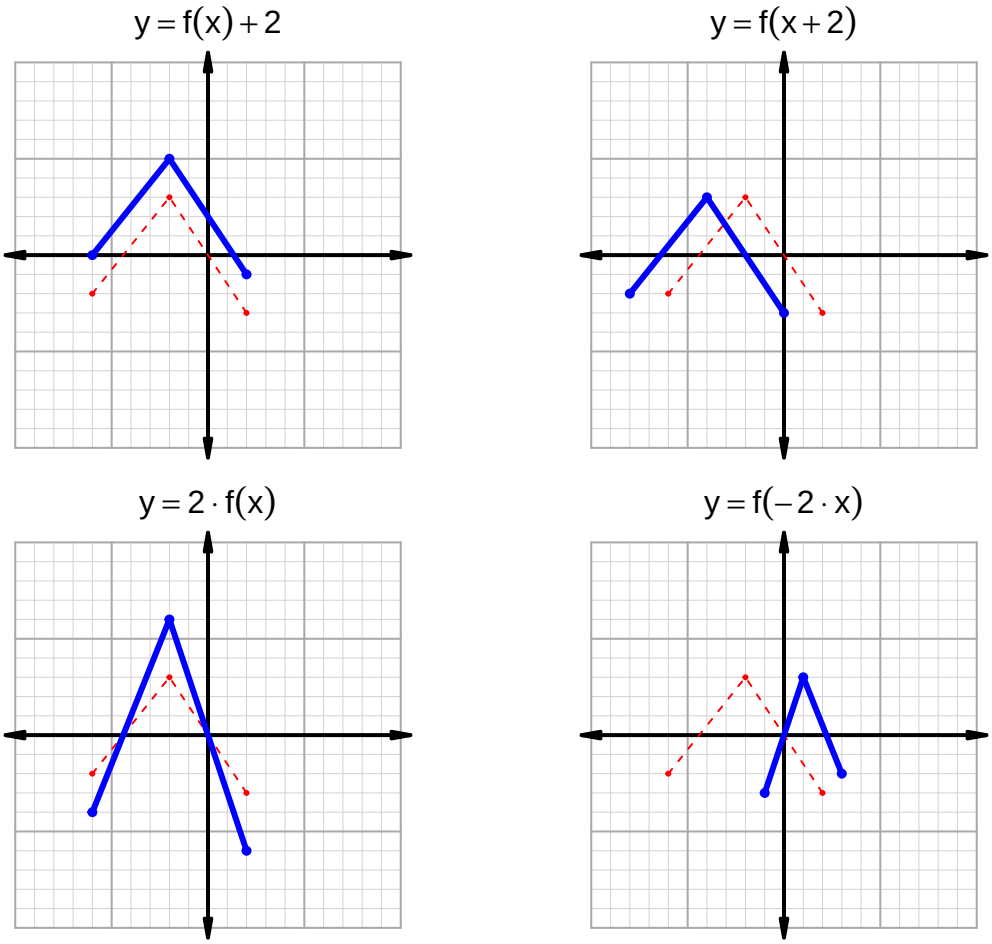
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.




3. Let function $g$ be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 47$ and $x_2 = 87$. Express your answer as a reduced fraction.

| $x$ | $g(x)$ |
|---|---|
| 47 | 73 |
| 73 | 87 |
| 78 | 47 |
| 87 | 78 |

$\frac{f(87)-f(47)}{87-47} = \frac{78-73}{87-47} = \frac{5}{40}$

The greatest common factor of 5 and 40 is 5. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{1}{8}$$